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(SHOW IN BODY COMPLETE DETAIL OF EXPENDITURE AND WORK TO BE DONE)

AUTHORIZATION NO. EST. COST: MATERIAL OUTSIDE EXPENDITURE

TOTAL

\$1500.00

EASE AUTHORIZE THE FOLLOWING: EASE DO THE FOLLOWING WORK:

This is to cover the cost of rebuilding the laboratory 100 centimeter sphere

gaps using porcelain tubes instead of treated wood. At present the treated wood in the sphere gaps has deteriorated where we are realizing only 50% of the rating of the spheres.

Rebuilding the spheres using porcelain will have the following advantages.

- 1) High humidity or moisture will not effect the usefulness of the spheres.
- 2) Will extend the useful range of the 100 centimeter spheres
- 3) Sphere gap supports will be easier to keep clean.
- 4) All parts will be made in our own plant and so avoid material scarcity
- 5) Will present another example of high voltage porcelain at work.

Mr. Bettini please provide sample rods as requested by D. M. Demarest

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Mr. Demarest

MR BETTINI MRSTEWBACH SSUED BY:

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AUTHORIZE THE FOLLOWING: DO THE FOLLOWING WORK;

ISHOW IN BODY COMPLETE DETAIL OF EXPENDITURE AND WORK TO BE DONE

This supplement is written to cover the material to be made.

Mr. Bettini please make the following:

	Quantity Good	Draving	Part No.
a)	2	VM-57904-A	57904-A
ъ.)	3	VM-57904-A	57904-A1
c)	2	UM-57904-B	57904-B

Mr. Hill: Please fabricate the following:

a) 2 steel adapters galvanized as per drawing UM-59904-F.

Note: Holes to be drilled in these adapters will be marked on the job and returned to the Machine Shop for Brilling.

Production: 2 drawing No. 90244 M.I. flanges will be required.

Mr. Shamberger: Please assemble parts 57904-A as per drawing No. 57904-AZ.

Refer to Mr. Demarest for/Turther details.

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Disp. 3 Disp. 4

Mr. Demarest

Mr. Bettini (2) Mr. Alcott

Mr. Neil

Mr. Shamberger Disp. 2A Mr. Herchenhan Payroll

APPROVED BY

BT File (3)

AND EXPENDITURE RECORD Page 2 AUTHORIZATION NO. DED-1048-1 EST. COST: MATERIAL LABOR OUTSIDE EXPENDITURE TOTAL SHOW IN BODY COMPLETE DETAIL OF EXPENDITURE AND WORK TO BE DONE THE FOLLOWING: FOLLOWING WORK: Mr. Patten: Please schedule Mr. Bettini: Please follow (a) 57904-A (F-740) (S) - Porc. 3-Q 4-1/2" x 7" x 158" (1/8 scale) Fire 12 - Periodic kiln (Ring-Special) 1 - DW Pug B-1 D.W. Turn in Trough 2 - DW Shrink on head 3 - DW Polish Head Fin Cpt - Insp - Glaze GB-1 4 - DW Fire Inspect F1-1 5 - DW Cut off and grind opt. GR-3 6 - DW (b) 57904-A-1 (F-740) (NS) Porc. 30 4-1/2" x 7" x 149" (1/8 scale) Fire - 12 - Periodic kilm (Ring- Special) 1 - DW Pug D.W. Turn in Trough 2 - DW Shrink on Head 3 - DW Polish head 4 - DW Fin Cpt - Insp - Glaze GB-1 5 - DW Fire Inspect F1-1 6 - DW Cut off and grind (c) Mr. Bettini: (57904-B) Please make in Pilot Shop Production Dept .: Order 2 castings 90244 M.I. flanges. Mr. Weil: Please machine, drill and galvanize ISSUED BY: see page 1 APPROVED BY: \_\_

INCORPORATED

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COST AND DELIVERY ESTIMATE SHEET

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# MATERIAL DELIVERY RECEIPT

# TO SHIPPING DEPARTMENT

PKG. AND CASE No.	QUANTITY	DESCRIPTION	BOXING	WEIGHT
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		Type Cycles Kv-a.		
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Dr. H. Rudoff Materials & Process Division General Engineering Lab General Electric Company Schenectady, New York

On a recent trip to Locke you discussed the possibilities of our using some of your epoxy resin for making bonds between porcelain surfaces. The attached sketch shows a proposed bond that we would like to make. For this application it would be desirable to make a bond between a glazed and unglazed section of porcelain capable of withstanding moderate cantilever loads.

Other desirable features would be as follows:-

- 1- Low thermo setting temperature.
- 2- Bonding material should have a dielectric constant of about 4 or 5.

We are thinking of incorporating this bond in a design of a high voltage structure which is of such a nature as to make it desirable to eliminate all metal fittings. Perhaps some of these epoxy resin would do the job.

> D. M. DEMAREST Supervisor of High Voltage Laboratory

DMD/bm



SUBJECT: Porcelain to Porcelain Bond

Schenectady, September 28, 1951

Mr. D. M. Demarest Locke Department BALTIMORE, MD.

We feel quite confident that a bond can be made in the assembly that you sketched for us under USK-9-10-51. The epoxy resin involved has a dielectric constant of four (4) which presumably meets your requirements.

Further specifications of the setting temperature which is permissible and what load would be considered moderate would help make an actual decision. Present materials usually require from 125°C up for cure and will in general give a bond which is about as strong as that between the glaze and the porcelain. If you can send us some actual parts I think we can make them adhere rather satisfactorly, but whether they will pass your requirements depends on more exact specifications of what these requirements are.

H. Rudoff

GENERAL ENGINEERING LABORATORY

Phone: 3245

HR:mk

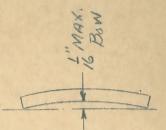
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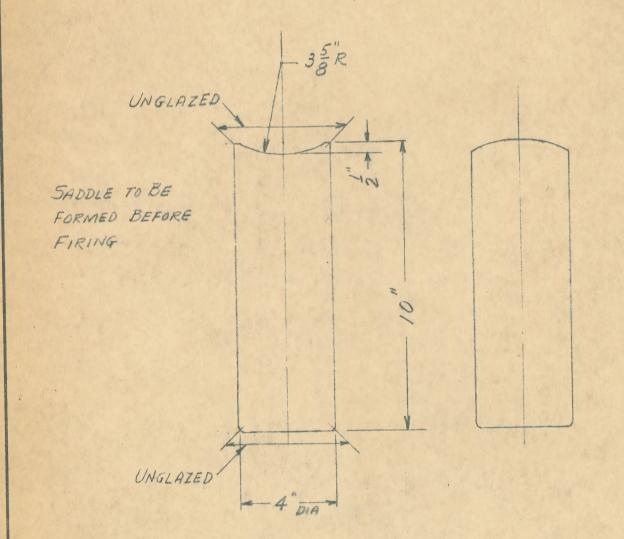
### TUBE, PORC.

#### ATTENTION!

R-282 8-15-51

UNLESS OTHERWISE SPECIFIED





LOCKE INCORPORATED
BALTIMORE, MARYLAND
DWG. DATE OCT. 8, 1951



U-M-57904-B

#### Porcelain to Porcelain Bond

Dr. H. Rudoff Materials & Process Division General Engineering Lab. General Electric Company Schenectady, New York

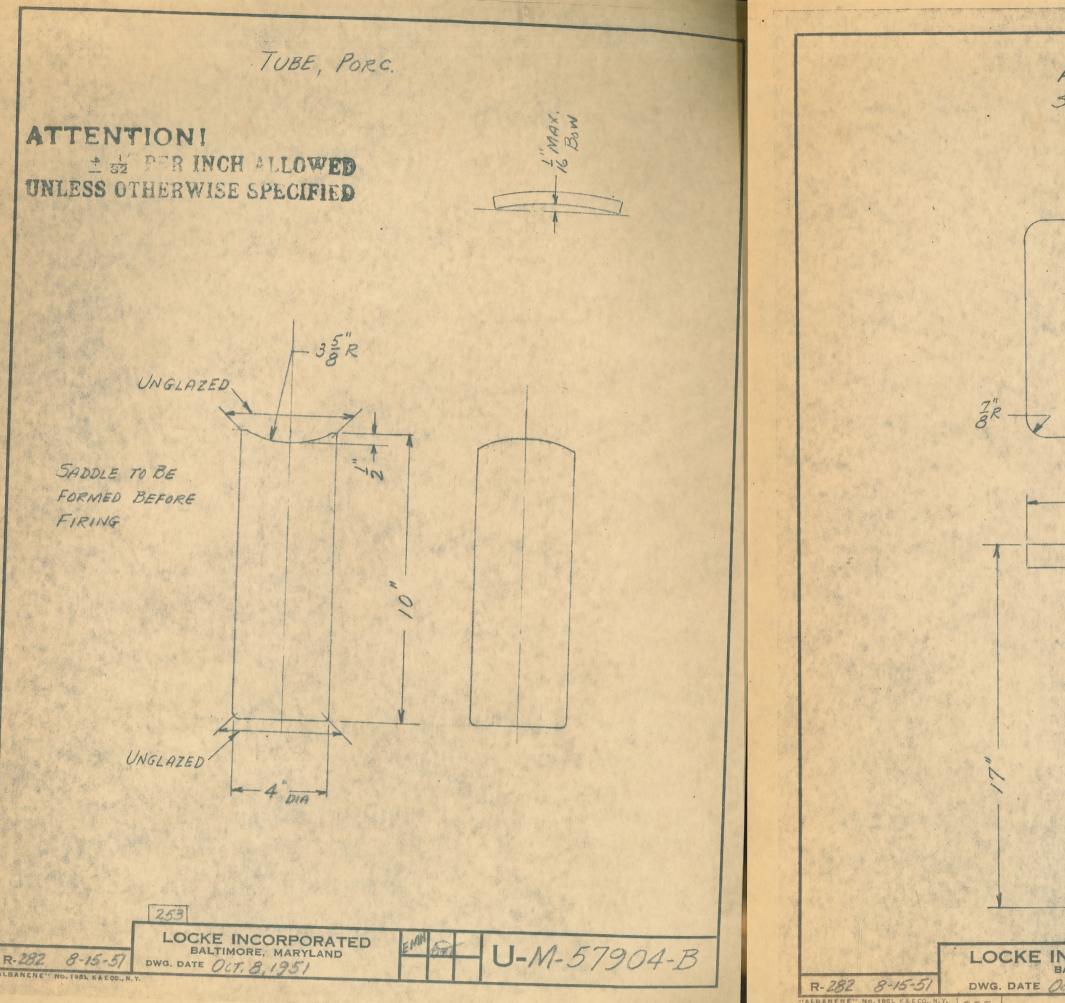
I am sending to you by percel post some small porcelain tubes that can be assembled as per locke sketch USK-9-10-51. If you would be able to make some sample bonds so that we could test them and if the tests proved successful we could then proceed with a small order of the material so that we could try them on a large scale piece.

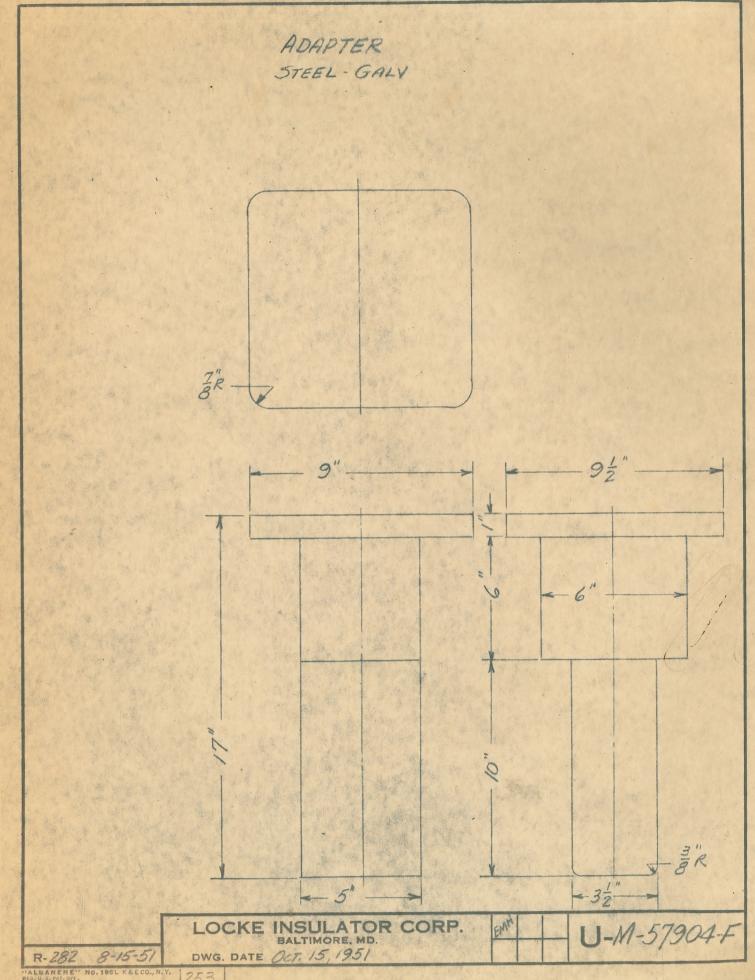
I am not giving you any further specifications inasmuch as you have stated that the epoxy resin bond would be "about as strong as that between the glaze and the porcelain". The temperature limitation of 300°F is desirable since porcelain is rather poor in thermal shock resistance. Ideally, we would like to be able to make the bonds at room temperature.

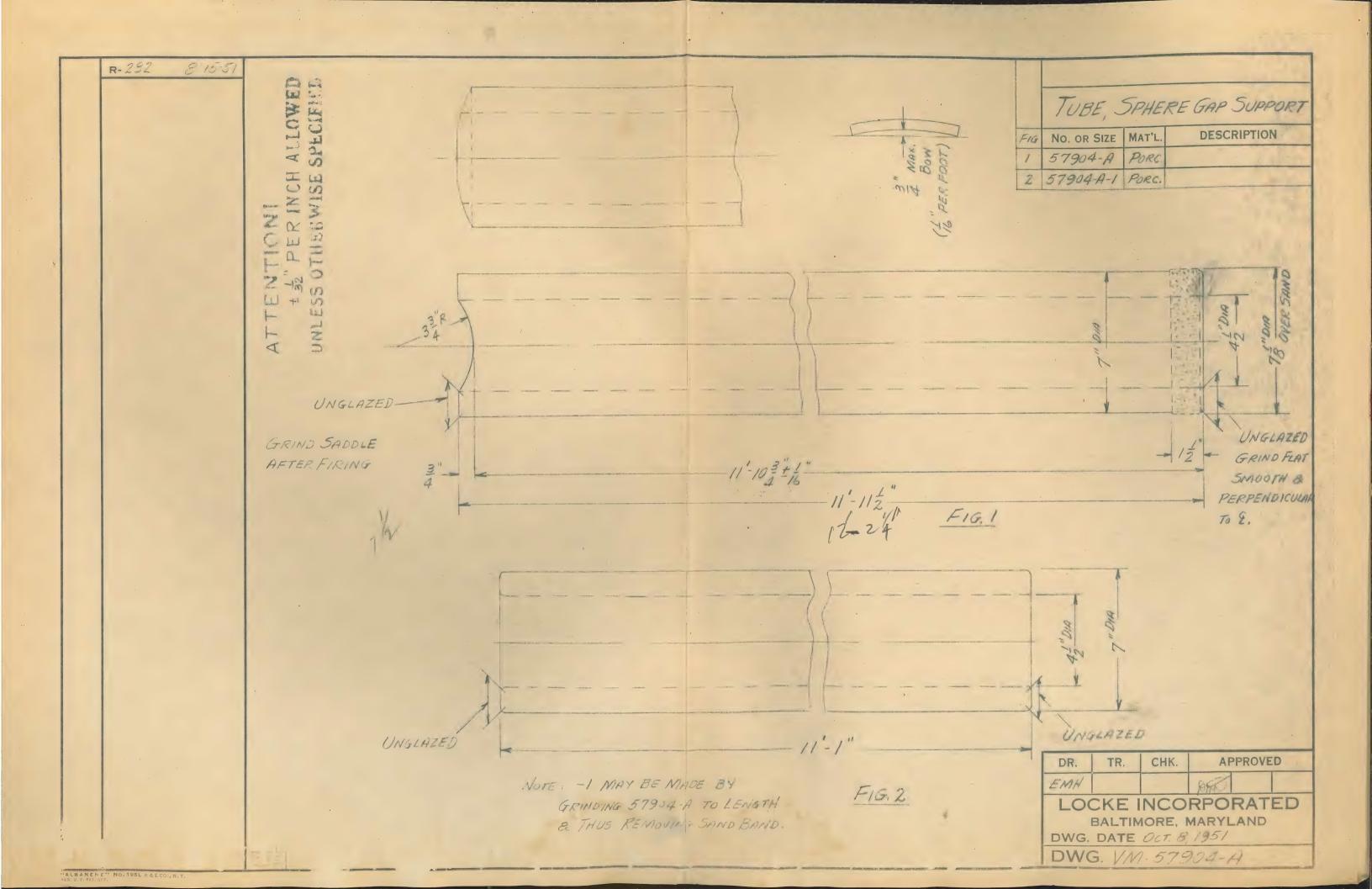
Would you also send me an estimate of the cost of the materials and any other information you deem pertinent.

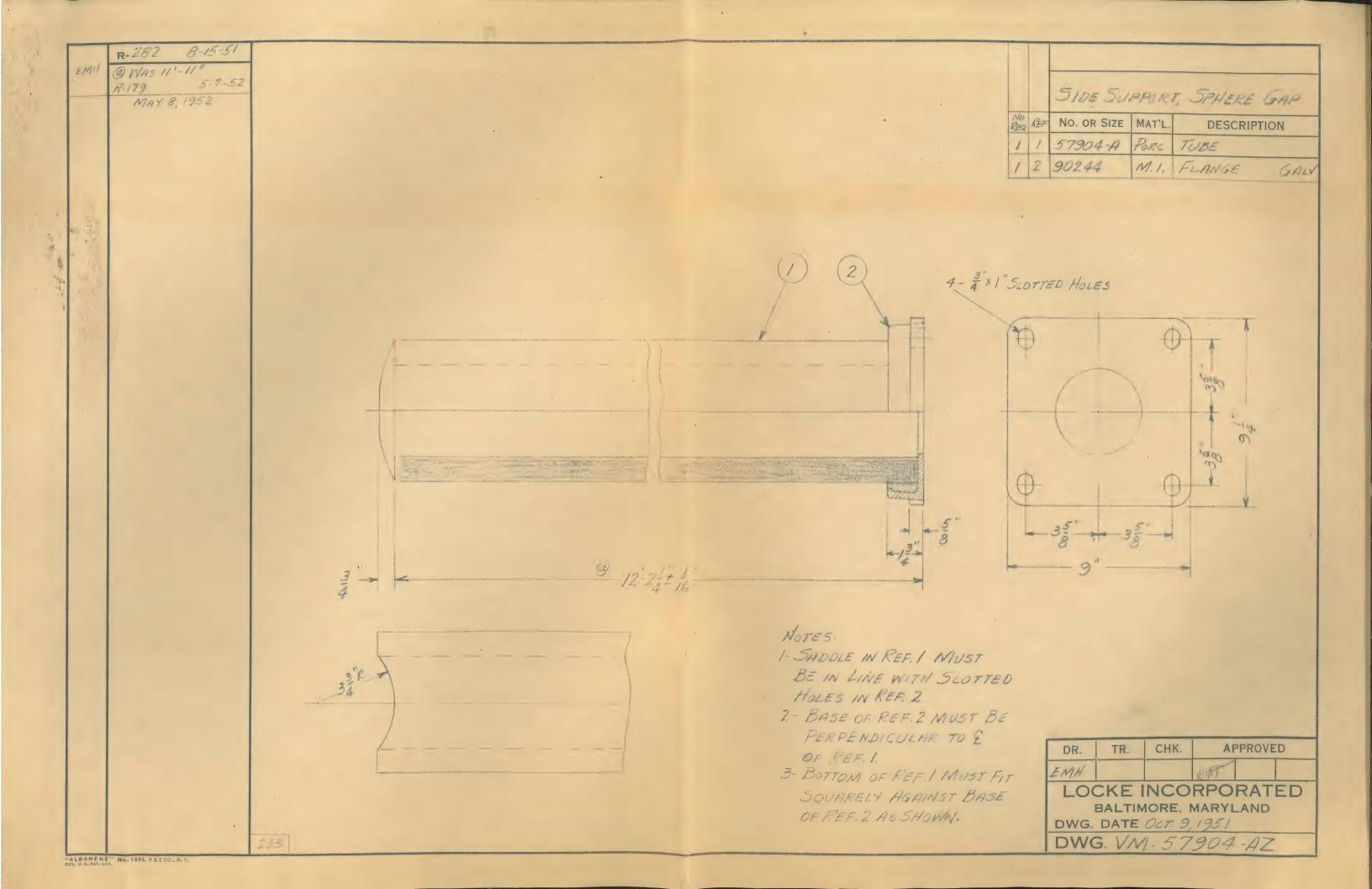
D. M. Demarest Supervisor, High Voltage Laboratory

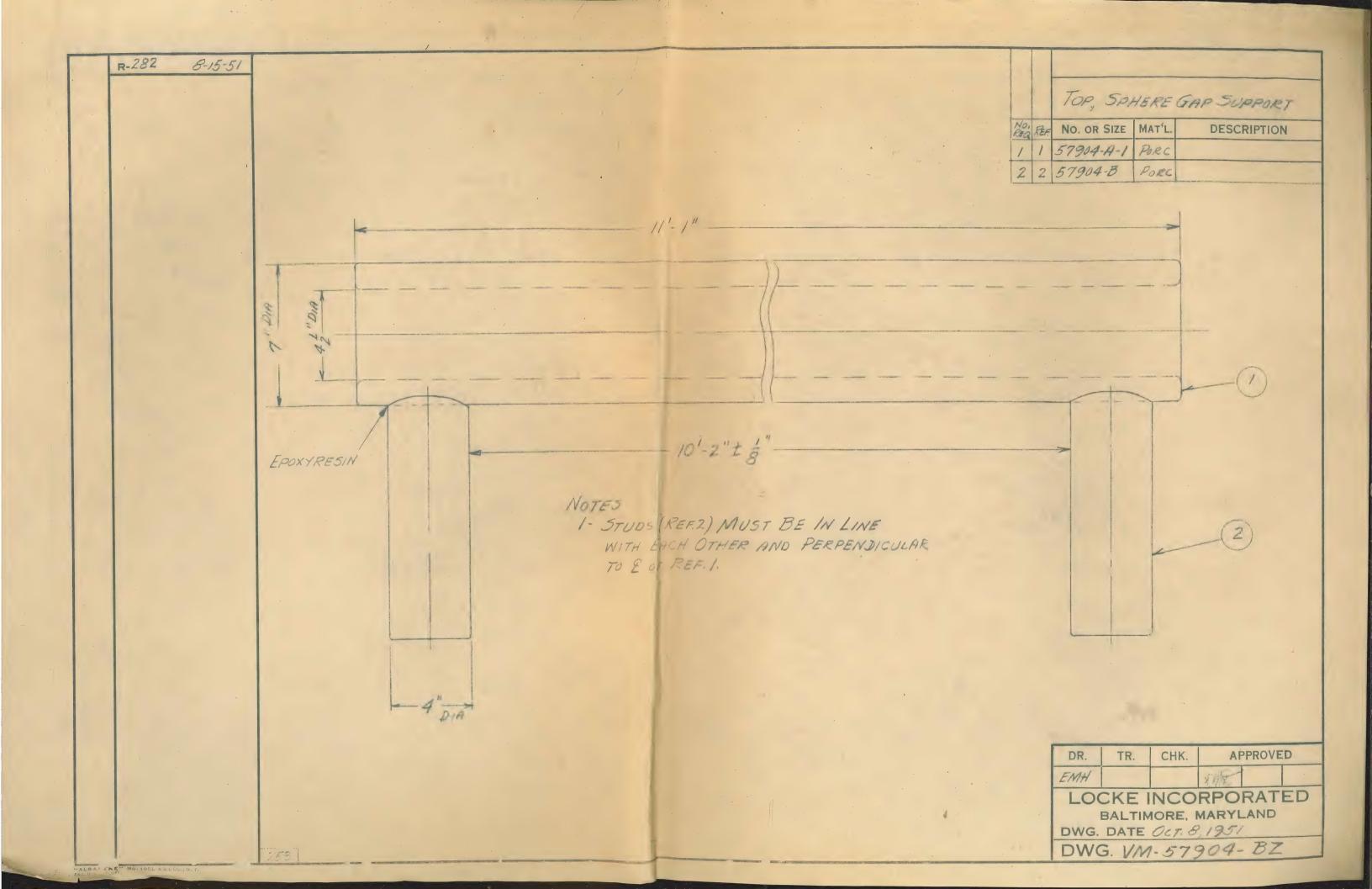
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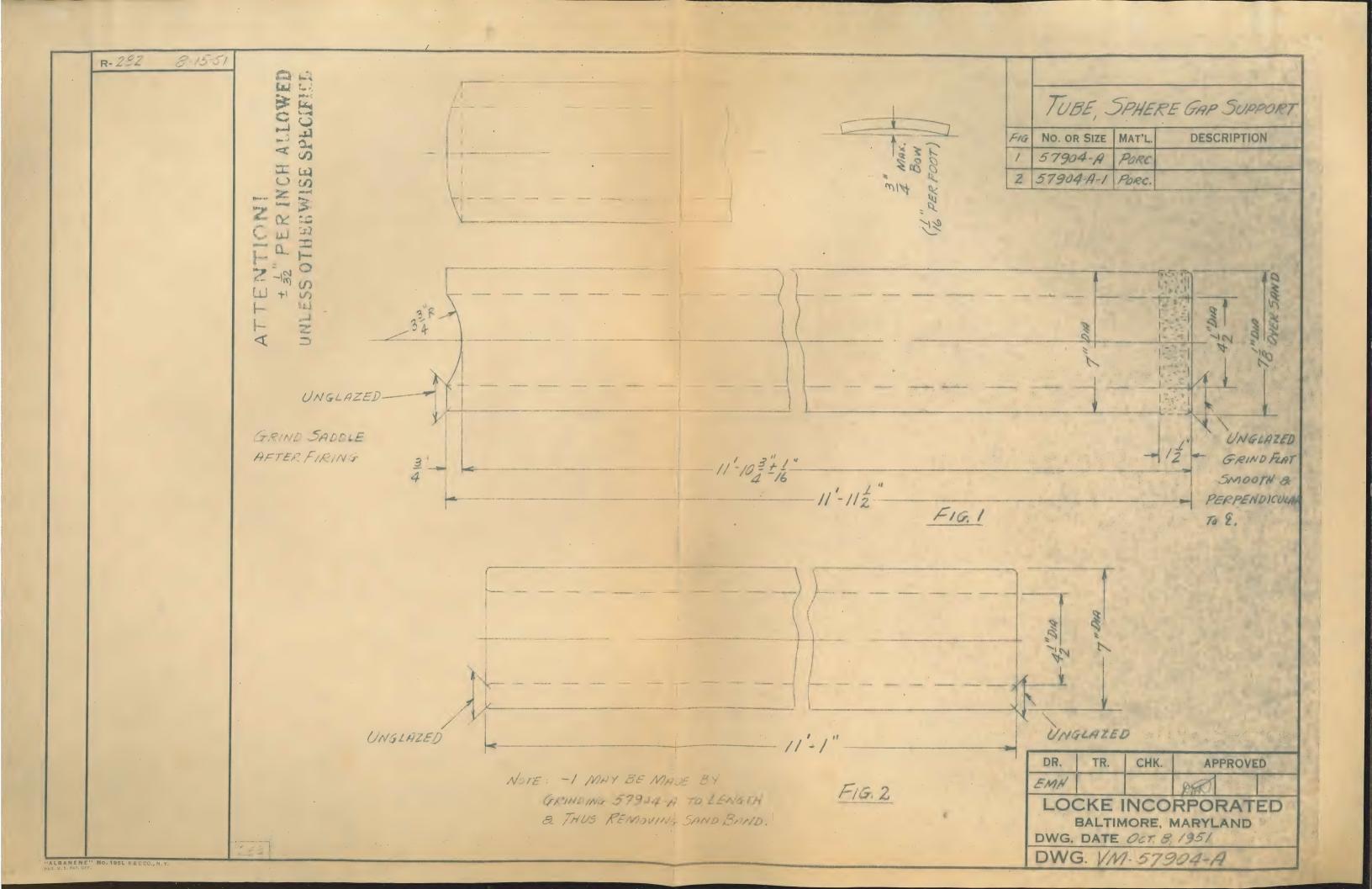


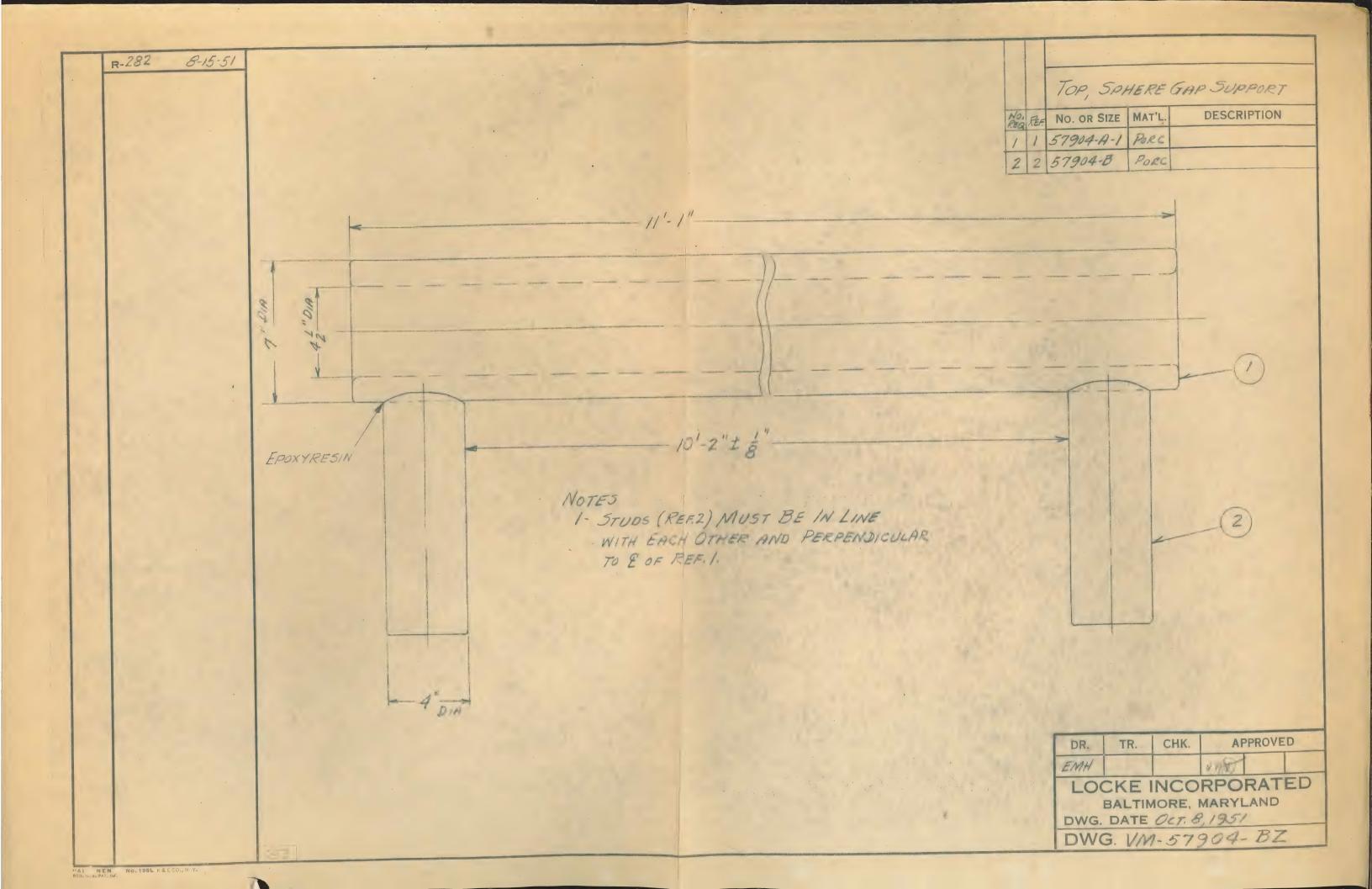










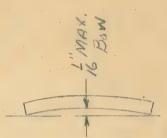


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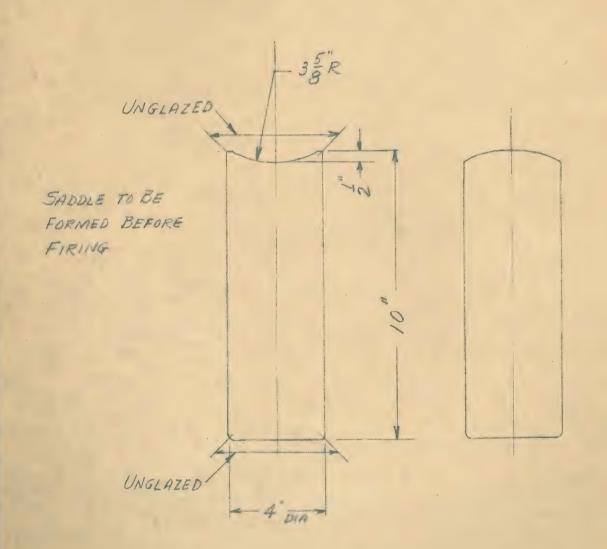
TUBE, PORC.

#### ATTENTION!

UNLESS OTHERWISE SPECIFIED



U-M-57904-B



LOCKE INCORPORATED
BALTIMORE, MARYLAND

DWG. DATE OFT BIRT

TO:- MR DON DEMARGST

May 22, 1952

The Locke Department of General Electric Company Post Office Box 57 Baltimore-3, Maryland

Attention: Mr. W. Winkler

Subject: Your Order 13083 Our Reqn. BAL-24649

#### Gentlemen:

Confirming Mr. Chaney's telephone conversation of today, please be informed that the malleable iron base which you originally ordered would be priced at \$18.25 each less 10%, (material not supplied) but the substituted bronze bases which we shipped on 4/2/52 was priced at \$16.00 less 10%. Therefore, from a previously mentioned figure, you can plainly see that there will not be any adjustment made if you keep these bronze bases in substitute of the malleable iron bases.

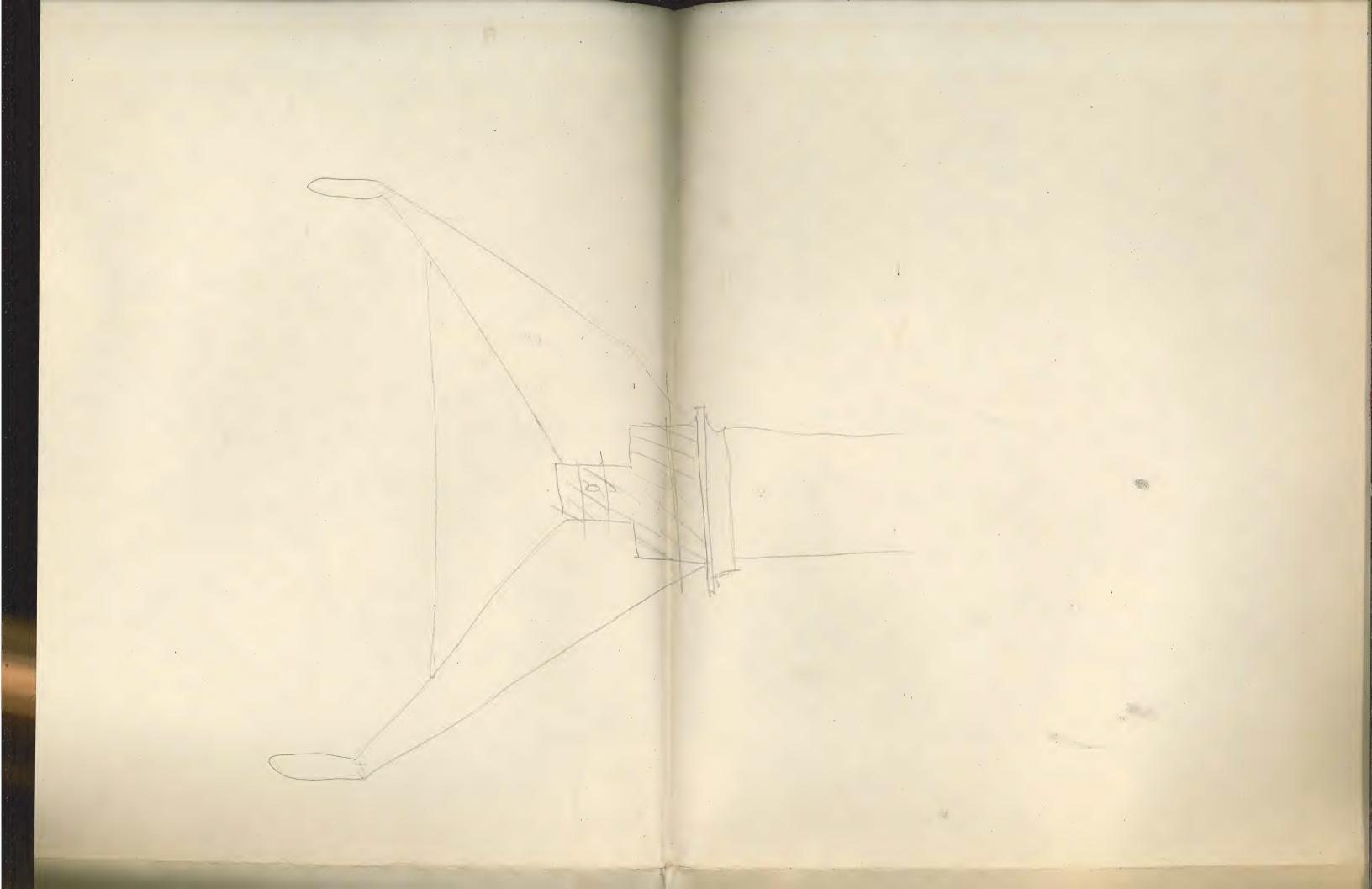
Unless we hear from you stating that the bronze type bases are not acceptable, we will consider this matter closed.

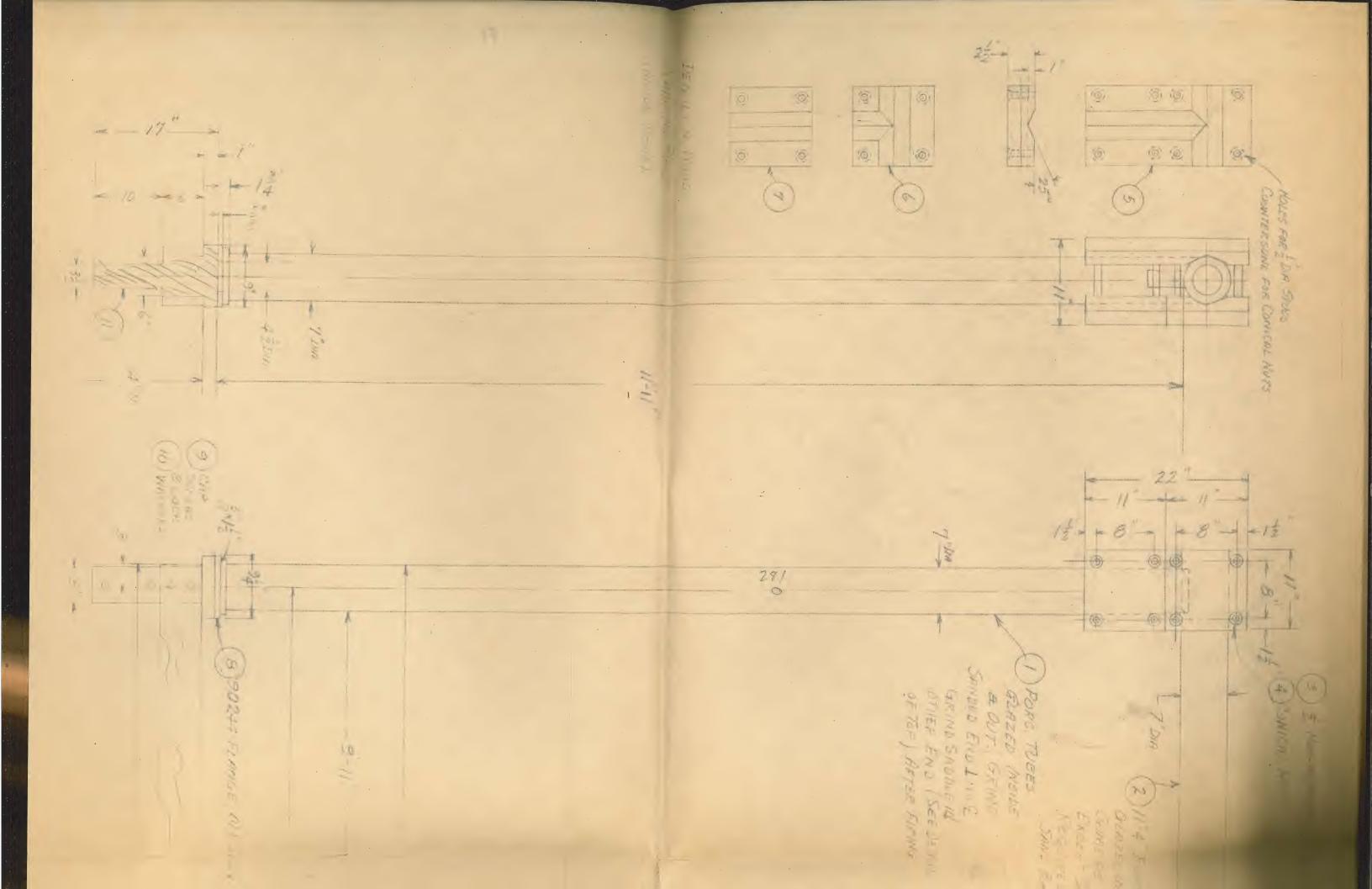
Very truly yours,

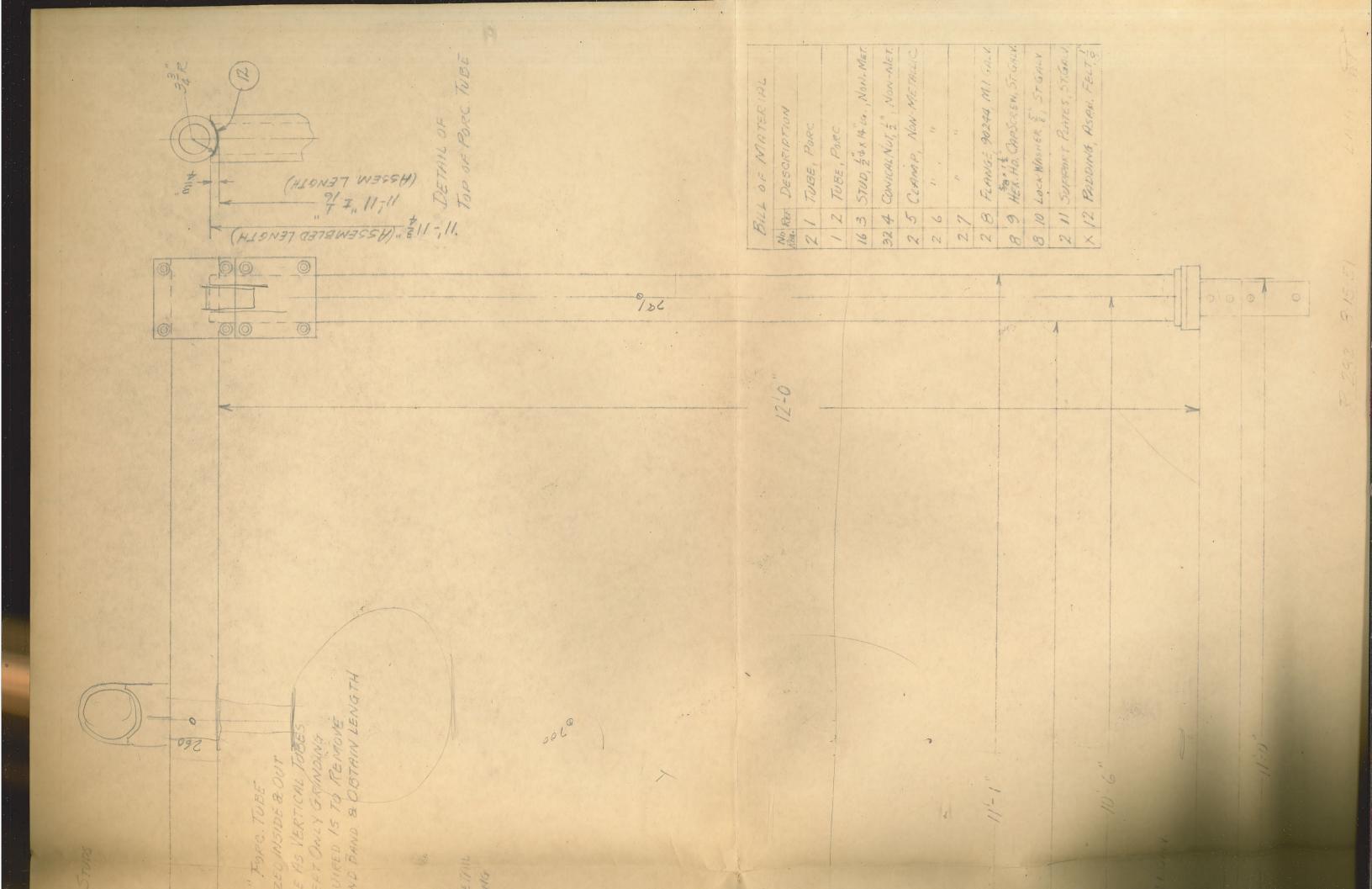
W. T. WINTER ORDER SERVICE DIVISION

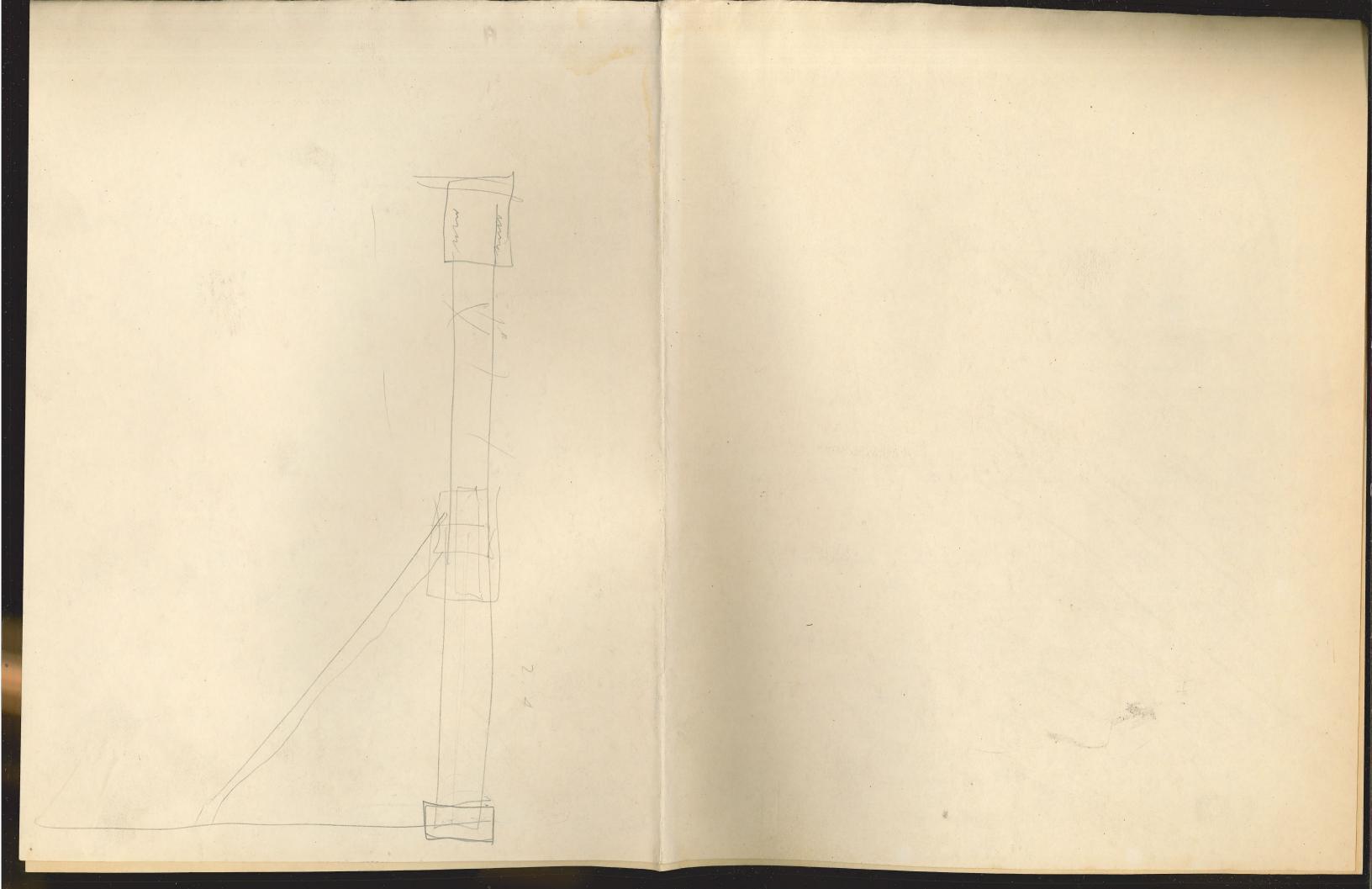
WTW:ST:PH

Locke Est- 3847 SPHERE GAR FRAME for (Ald Whowarest & from layers) PORC. TUBE any Size 4/4 x 7 x 158 (1/6 SCALE) 3 Clean Cap - Jube FLANEE 00 380 each Mach lat Parg 35% B-1
Shruk on Hill Polish Head In Durys- Itz GB-2 1.30 2 20 JIME 150% Wati 30 ,33 6,00 .18 ,60 L.A- 570 30 18.2 7.38 ,50 630 16 REQU 2.30 5. V. 2% 13 19 25 TOTAL. 5.03 643 (9) J-111 8 175 .25 Mry for 15% 1127 .50 Inspect 4 2.80 18.70 mule 80 908 32 REDD. .45 TOTAL 37 40 d.A. 52 (10) 4 80 TOTHL 9,03 144 S.U. 15% 1097 37 40 Cesus 3 707#4 921 75 1810 901 E 165% 1+2 Wach Cpt. 170 17 28 29 07 Hath 350# Fine 12/PERIODIE KILN Oring (SPEC) 4 80 5.0.1090 10 85 (11) 187 49 36 226 00 10 00 42116 1500 125 5760 6+7 468 1870 267 17 20 00 20 00 Fd fino 15% 4008 24 68 307.25 each 10 2 READ. 20 00 TOTAL 49,36 1128.49 10% VAR. 00 921.75 3-Pes 1241.33 Wach Got 16 1.76 2.64 J11/150 440 14 40 28 80 AJ Gaver , 8/19/51 17,60 2 ITEMS









h, = 3,5 12=2.28  $I = m \left(k_1^2 + k_2^2\right)$ Z= TI (113.89) S = 12 17 = SI 21/2 = SI/C I = I/6 +- 14) L= 45 T/c h = 149.50 12 = 25.61 L = (4) 8 T (h4-h4) (h,4-h3) = 1/3.89 A = 4TT (44-12) = 4TT (113.89) = 409 102 L= 5 K = 1500 102 = 2100

 $\frac{T=m(h^2+h^2)^2}{2}$   $m = \sqrt{(h^2-h^2)}$ I/ 1/3.89 = 102 (25) 102 -1= 3 102 = 3000 2-194 098